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Curriculum S.8



ONTARIO
DEPARTMENT OF EDUCATION

Grade 13


CURRICULUM BULLETIN

1964-1965

Announcement of Changes in the Courses
of Study for Grade 13

Effective in the School Year 1964-65

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This bulletin is a consequence of the approval by the Minister of Education of Recommendations Nos. 1 and 2 of the Report of the Grade 13 Study Committee, 1964.

The recommendations read as follows:

1. "That, for the purposes of the 1965 Departmental examinations, steps be taken to remove from the Grade 13 course of study in each subject, topics which at present require a total of approximately three weeks of teaching time, and that announcement of these reductions be made before September 1, 1964.
2. That brochures be prepared for distribution to teachers in September, 1964 as a guide to the most advantageous use of the additional time which will be at their disposal because of the reductions in course content referred to in Recommendation No. 1.

It is not the intention to shorten the academic year. Teachers should be reminded to consider the reduction in topics not as an opportunity to "cover" the course of study by an earlier date and thus to have more time for drill, but as an opportunity to experiment with teaching in greater depth, to provide the enrichment which comes from wider reading, and to "stretch the students' minds" in various desirable ways.

The proposed deletion of topics is a temporary measure."

With the two recommendations as their terms of reference, curriculum revision committees, representative of the universities, the Grade 13 teachers, and the Department of Education, were called upon to make suggestions with respect to the several courses of study.

Approval has been given for the changes noted herein, which for each subject or group of subjects are set down in two parts. Part A consists of deletions of specific items of content; Part B of suggestions for course enrichment.

Part A

Reduction of the Existing Course

The objective in this part is "to relieve some of the pressure upon the candidates". There has been no attempt to re-write any part of the course of study. Moreover, teachers are advised that the reduction in course content will not alter the basic pattern of the Grade 13 examination of 1965 unless such alteration is specifically indicated herein.

Because text-books are not "authorized or approved" for Grade 13, any reference to a particular text-book is for the purpose of identifying items of course content and should not be interpreted as a prescription of that text-book for use in all classes.

In most instances the items to be deleted from the courses are indicated by page references to the authorized courses of study. The official curriculum publications for the subjects of study in Grade 13 are listed below

Accountancy Practice	Curriculum RP-31, Commercial Subjects
Art	Curriculum S.13 Art
Botany	Curriculum S.23 Biology
Chemistry	Curriculum S.18 Chemistry
English	Curriculum RP-S4 English Circular 58 Prescriptions 1964-1965
Français	Curriculum RP-46 (Revised 1964), Programme de Français, Classes Secondaires de Langue Française. Circular 58, Prescriptions 1964-1965
Geography	Curriculum S.7 Geography, Senior Division
Greek	Curriculum I. and S.11, Latin and Greek, Circular 58, Prescriptions 1964-1965
History	Curriculum S.9, History, Senior Division
Latin	Curriculum I. and S.11, Latin and Greek, Circular 58, Prescriptions 1964-1965
Mathematics	Curriculum S.12, Mathematics, Senior Division
Mathematics of Investment	Curriculum RP-31, Commercial Subjects
Modern Languages	Curriculum I. and S.15 Modern Languages, Curriculum I. and S.43 Spanish, Circular 58, Prescriptions 1964-1965
Music	Curriculum I. and S.16, Music Circular 58, Prescriptions 1964-1965
Physics	Curriculum S.20, Physics
Secretarial Practice	Curriculum RP-31, Commercial Subjects
Zoology	Curriculum S.23, Biology

Part B

Suggestions for Teaching in Depth

The aim here is to suggest means whereby selected areas of the course may be presented in depth so that students may have some experience of study at the university level. Depending upon the nature of the subject, the suggestions may take the form of comments upon possible methods of approach, or they may identify certain areas of content considered suitable for enrichment.

Teachers are advised that items used in Part B for purposes of illustration or elucidation are not to be considered as prescriptions for the external Grade 13 examinations.

Teachers must be free to determine for their own classes the elements of the course to be studied in depth. At the same time, however, the entire purpose of this approach would be defeated if the students came to regard the enrichment phase of their course as something apart from the basic, prescribed content on which they are to be examined. The teacher should, therefore, guard against the introduction of new material unless he is convinced that it will illuminate topics already on the course.

For this reason it is urged that, whatever the topic selected for "study in depth", it should be an extension, elaboration, reappraisal, or expansion of one or more "prescribed" topics rather than a separate section of the course, perhaps unrelated to the basic core.

The practice of scheduling special weeks or periods for "study in depth" would not be in accord with the Study Committee's intent, particularly if it created the impression among students that there were two disparate elements in the course.

ACCOUNTANCY PRACTICE

Part A

Reduction of the Existing Course

1. Section No. 4 (Bankruptcy) on page 28 of Curriculum RP-31 is to be deleted.
2. Section No. 6 on page 28 of RP-31 is to be reduced. It is to read:

"6. Machine accounting: application of machines to accounting systems; cash register used as a charge account posting machine; bookkeeping machines to handle accounts receivable and accounts payable."

Card punch machines and electronic data processing are items to be covered in a separate course. A new committee is being organized to prepare courses and to determine the grade placement for the various topics in this new and important area.

Part B

Suggestions for Teaching in Depth

1. A practice set may be used. A number of these are available, either in the reference books, or from the publishers. They provide the student with practice in working a problem covering the entire bookkeeping cycle, and assist him to understand the relationship of the parts and the whole. They may also serve as a useful review.
2. Additional topics may be introduced. These should be items closely related to the course, and with practical applications. Such topics as federal and provincial sales taxes, excise taxes, personal and corporation income taxes, and succession duties may be included, and, perhaps, data processing.
3. More time may be spent on the topics at present listed in the course, to work additional problems, and to study recent trends. A comparison of the financial statements of various firms may be a valuable application.

Reference Books

Seggie: Basic Accounting Pitman

Finney and Miller: Introductory Accounting Prentice-Hall

Noble and Niswonger: Accounting Principles (South-Western)
Gage

ART

Part A

Reduction of the Existing Course

The following sections of Curriculum S.13, Art are to be deleted:

Section 8, Unit 1, America Before Columbus	page 43
Section 8, Unit 2, The Era of Colonial Dependence	page 43
Section 9, Unit 1, Art of Native American Peoples	page 45

Part B

Suggestions for Teaching in Depth

The time made available as a result of the deletions noted above might be profitably devoted to a concentration on those sections of the course on which the development of contemporary art of the Western World, and especially that of the American scene, is partly dependent.

The material is to be found in the following sections

Section 6, Unit 2, Painting: The Permanent Revolution	pages 38-40
(b) Romanticism	
(c) Realism	
(d) Impressionism	
(e) Post-Impressionism	
Section 7, Unit 1, Modern Movements in Painting	pages 40-41
(a) The Fauves-Expressionist Tendency	
(b) The Cubistic-Abstraction Tendency	
(c) The Fantasy-Surrealist Tendency	
Section 7, Unit 3, Modern Movements in Architecture	page 42
(a) The Cubist Tendency	

BOTANY

Part A

Reduction of the Existing Course

(Reference: Curriculum S.23)

<u>Page</u>	<u>Topic</u>	<u>Deletion</u>
4	Thallophytes (Plant diseases)	"One of Apple Scab or Black Knot; and one of Wheat Rust or Pine Rust. Life cycle, economic importance and control."
5	Pteridophytes	"Recognition only of Equisetum (horsetail), Lycopodium (club moss), and Selaginella."
6	Pollination	..."agents of pollination; adaptations of flowers for wind and insect pollination; adaptations for cross pollination - imperfect flowers, dichogamy, sterility of pollen; shape of flower; advantages and disadvantages of cross- and self-pollination; artificial pollination." (Note: "Microscopic study of pollen grains; cross- and self-pollination" remain)
9	Genetics	"(b) Mendel's experiments with pea plants of contrasting characters to show (i) that the first generation following a cross is like one parent, (ii) that the members of this generation crossed among themselves, give offspring showing the ratio 3:1 and that the dihybrid cross gives the following ratio: 9:3:3:1."
9	Genetics	"(c) Explanation of above in terms of (i) dominant and recessive characters, (ii) segregation."
9	Genetics	"(d) Blending or incomplete dominance - snapdragon, four o'clock. Quantitative inheritance." (Note: The introduction and Sections (a) and (e) remain).

Part B

Suggestions for Teaching in Depth

- General - More emphasis should be placed on the experimental work of the course with students undertaking investigations of various aspects of Biology.
- The Cell - (1) Microscopic study of different types of cells to observe variations in structure.
- (11) Microscopic study of sections of root tips noting the numbers of cells in the different stages of mitosis.
- Bacteria - (1) Have students prepare Potato-dextrose agar and liquid media (eg. Beef-peptone broth). Grow bacteria on both solid and liquid media observing differences in bacterial growth.
- (11) Undertake experiments to show the effects of different sugars and salts on the growth of bacteria in selected cultural media.
- (111) Carry out experiments to discover the influence of temperature on bacterial growth.
- Lichens - A Study of local lichens to observe types and details of their structure.
- Ferns - Undertake the propagation of ferns from spores.

SPERMATOPHYTES

(A) Gymnosperms

The Pine - Examine several species of pines noting differences in leaf grouping, leaf structure and reproductive structures.

(B) Angiosperms

- (1) Flowers - (a) Examine the flowers of several representative species of each of the families studied.
- (b) Discuss the values of scientific vs. common names. Encourage students to learn and use the scientific names for plants studied.
- (II) Pollination
- (a) Examine pollen grains from flowers of several kinds of plants.
- (b) Germinate pollen grains in sugar solutions to observe the development of the pollen tube.

- (III) Seeds - (a) Undertake experiments involving the germination of seeds. Try different mixtures of seeds, different soil mixtures, different quantities of water, different planting depths, and different temperatures.
- (IV) Leaves - (a) Experiments on respiration to show: (i) Efficiency of seed respiration by measuring the heat released. (ii) Experiments to show respiration in leaves. (iii) Anaerobic respiration.
(b) Experiments on transpiration that relate loss of water to water supply and wilting.
- (V) Ecology - (a) Use films and other visual aids to show biomes and plant successions.

CHEMISTRY

Part A

Reduction of the Existing Course

<u>Page</u>	<u>Unit</u>	<u>Part</u>	<u>Sub Part</u>	<u>Deletion</u>
4	II	3	(ii)	"the effect of copper...to the solution,)"
9-10	IX	2	(i)	"the action of sodium and potassium on water"
			(ii)	"(a) to produce sodium hydroxide from lime,"
		3		"The production...Demonstration experiment."
		5		"The uses...permanganate." and <u>Note</u> "In this ...uses depend."
10	XI	1	(i) - (v)	"An experimental...with copper"
		5	(part)	"Properties and uses of hydrofluoric...cryo- lite."
11	XIII	4		"The commercial...cyanamide."
		5		"The properties...hydrate"
11	XIV	3		"The properties...sulphide"
12	XVII	3	(i) (ii)	"(i) carbon, (ii) sulphur,"
		5		"An experiment...air"
		6		"The preparation...water"
		7		"The properties...phosphate."
12	XVIII	1	(part)	"and hydrogen sulphide"
		3		"Demonstration...paints."
12-13	XIX	1	(part)	"The Bessemer...furnace."
		2		"Some important...alloys"
		3		"The tempering...steel"
14	XXII	4		"Types...medium")
		6		"Practical...precipitator"
16	XXIII	D	2(c)	"Regeneration...guncotton."

Part B

Suggestions for Teaching in Depth

- Most of the references to properties and uses of substances have been deleted for examination purposes. However, it is realized that interest is in many cases promoted by relating the chemistry course to chemicals in common use. Teachers may therefore increase depth of treatment by treatment of uses even though some have been deleted for examination purposes. In treatment of uses, an attempt should be made in every case to show upon what properties the uses depend.
- Certain industrial processes have been retained on the course. It is hoped that when possible the teacher can draw upon experience and knowledge of local industry to enrich the discussion of these.

3. Many teachers have difficulty in covering Unit VIII, The Concentration of Solutions, in five periods. It should now be possible to devote sufficient time to taking up the various types of numerical problems listed in this unit. Every student could also be given the opportunity to perform the experiments in this unit.
4. The modern trend in chemical education, which will undoubtedly be reflected in subsequent revisions of the Grade 13 course of study, places much emphasis on atomic, molecular, and crystal structure, and on the forces that bind atoms or molecules together. From these considerations it is much easier to interpret and remember many of the physical and chemical properties of substances. In seeking areas of enrichment related to the present course of study, teachers might with advantage lay more stress on atomic structure and the periodic classification as unifying concepts and as aids to interpreting similarities and gradations in properties.

To give an illustrative example of the preceding, it is of interest to relate the easy formation of halide ions from halogen atoms to the so-called electron affinity of the latter, and similarly the almost complete absence of positive halogen ions is a consequence of the high ionization potentials of the elements. The size of the atoms and ions can be considered in relation to the numbers of electrons surrounding the nucleus, and consequently the oxidizing or reducing tendencies in this group can, at least in part, be related to the ease of removal of an electron from the outer shell of a series of halide ions of different size.

5. It will probably be helpful to introduce oxidation-reduction as an electron transfer process earlier in the year than suggested by the place of Unit XX in the present course. It is, for instance, practical to interpret the gradation in stability of the hydrogen halides (Unit XI - 4) as reflecting the graded ease of removal of an electron from the halide ion.
6. Much of the inorganic chemistry in the course involves reactions among ionized substances in solution. It will be advantageous to place greater emphasis on the discreteness of the ions in such solutions, particularly by the device of introducing and consistently using ionic equations wherever applicable. It may also be desirable to make pupils aware of the difference between gaseous ions and solvated (hydrated) ions, and the fact that the dissolving of substances, particularly electrolytes, involves substantial interaction with the solvent.
7. In seeking up-to-date and authoritative resource material for background and enrichment in the newer approaches to chemistry teachers would be well advised to provide themselves with the recently published volumes from the Chemical Education Materials Study Programme (CHEM Study) in the U.S.A. The relevant titles are:

"Chemistry - An Experimental Science Textbook"

"Chemistry - An Experimental Science - Teachers' Guide"

"Chemistry - An Experimental Science - Laboratory Manual"

These may be ordered direct from the publisher W. H. Freeman and Company, San Francisco, California. The second volume is available only to teachers. It is understood that pupils will not be required to buy these books.

ENGLISH

Part A

Reduction of the Existing Course

Since 1960 the content of the prescriptions in English literature has been progressively reduced from three to two longer poems, from twenty-five to eleven shorter poems, and from seven to six essays and short stories. One of the purposes of this reduction, as stated in recent issues of Circular 58, has been to allow "for some comparative study beyond the core course prescribed for examination purposes and for literary essay work related to the prescribed texts." This is in accord with the intent of the resolutions of the Grade 13 Study Committee.

As a result, the intent of the resolutions of the Grade 13 Study Committee has already been partially realized.

In addition to the above, and assuming their adequate coverage in Grade 12 (see Curriculum RP-S4, page 18) the following topics are to be omitted:

- | | |
|-----------------------------------|-------------------------------------|
| Topic 7 Logic, | page 16 of Curriculum RP-S4 |
| Topic 8, The Report, | pages 16 and 17 of Curriculum RP-S4 |
| Topic 9, Business Letter Writing, | page 17 of Curriculum RP-S4 |

Part B

Suggestions for Teaching in Depth

Supplementary Reading

Curriculum RP-S4, in the general comments referring to Grades 11, 12, and 13, contains the statement, "A considerable amount of reference reading, including literary criticism should also be required..." Since the actual Grade 13 course outline does not specifically mention this point, teachers might require their students to correlate some of their supplementary reading with the literature studied. Such supplementary reading of a related creative or critical work will reinforce and deepen the student's appreciation of the course.

Composition

The kind of supplementary reading mentioned above, and the comparative study that it will encourage should be linked closely to the course in composition. The English Composition outline in Curriculum RP-S4 requires "at least one longer expository essay of 1000 to 1500 words..." Circular 58, under Note 1 on page 6, allows time "for literary essay work related to the prescribed texts." At least one longer expository essay should be a literary essay. The topics for such an essay should be assigned early in the course to give students guidance in their supplementary reading and time for planning.

Drama

- (a) A comparative study of Lear and More in the two plays, King Lear and A Man For All Seasons.
- (b) A comparison of the use of imagery in King Lear and A Man For All Seasons.
- (c) The theme of suffering in King Lear and A Man For All Seasons.
- (d) A comparison of the two plays by Bolt, A Man For All Seasons and Flowering Cherry.

Poetry

- (a) A study of the other poems by Browning in Poems to Remember OR a comparison of "Andrea del Sarto" with another of Browning's dramatic monologues, such as "The Bishop Orders His Tomb" or "Fra Lippo Lippi." (Teachers may mimeograph any of Browning's poems, since there is now no copyright on his works.)
- (b) A comparative study of the other poems by Frost and Pratt in Poems to Remember. (Even these few poems exemplify differences between the two poets in style and attitude toward nature.)

Stories and Essays

- (a) A study of the short story in the twentieth century, using stories in all three parts of Man and His World.
- (b) A study of other short stories OR a novel by an author on the core course, for example, Bênet, Callaghan, Greene, Thackeray.

Novel

- (a) A comparison of the styles of Conrad and Hemingway, as revealed in Youth and The Old Man and the Sea.
- (b) A comparison of the attitudes of Marlowe and Santiago toward the sea in Youth and The Old Man and the Sea, respectively.
- (c) A study of another novel OR short stories by Hemingway or Conrad.

Note 1. Teachers should remember that the topics for reading and study noted above are suggestions only, and that they are free to determine for their own classes the elements of the course to be studied in depth. For most classes probably one phase of the course enriched in this way will be sufficient. The students should be allowed as wide a scope as possible in their selection of topics for reading and the preparation of a literary essay.

Note 2. Teachers should make use of a recording of King Lear and one or more of the many excellent recordings of poetry. The Schwann Long Playing Record Catalog, available in most record shops, contains an exhaustive list of spoken recordings.

FRANÇAIS

Partie A

Reduction du programme d'études

Le comité a cru qu'il était plus judicieux et plus pratique de réduire un peu chacune des sections du programme plutôt que de supprimer toute une section, un auteur ou un ouvrage, et de conserver ainsi un éventail plus vaste de sujets parmi lesquels les professeurs puissent trouver matière à une étude en profondeur.

En conséquence, les parties à omettre sont les suivantes:

1. Marion S.: Beaux Textes des Lettres françaises
Daudet: Les douaniers
Barbier: La cavale
Verlaine: Dialogue mystique
Nelligan: Soir d'hiver
2. Saint-Exupéry: Terre des Hommes
Le chapitre VII, "Au centre du désert", excepté le 7^e et dernier épisode de ce chapitre.
3. Savard: Menaud, Maître-draveur
Les chapitres 3 et 9
4. Maupassant: Contes
Le conte intitulé: "La ficelle"

Partie B

Suggestions en vue de l'étude approfondie

Relativement à l'emploi et à l'organisation du temps que la réduction du programme d'études met ainsi à la disposition des professeurs pour enseigner certains sujets d'une façon plus approfondie, voici quelques commentaires et suggestions qui pourront s'avérer utiles.

1. Buts à atteindre.

Il faut remarquer, selon des directives officielles, que, si cette réduction a pour résultat d'alléger le fardeau des examens finals, elle n'a pas pour but d'abrégier la durée du cours ni d'accorder plus de temps à l'étude de la matière au programme comme telle, ni même encore de consacrer trois semaines à la revue pure et simple de la matière enseignée au cours de l'année. La préoccupation du professeur devrait être plutôt celle de donner à son enseignement de la littérature française une nouvelle dimension qui soit à la fois, pour les élèves, une source d'enrichissement personnel et un entraînement préparatoire aux études universitaires.

2. Organisation et répartition du temps.

Cette organisation du temps peut se concevoir de différentes façons. Toutefois, il faudrait éviter de consacrer trois semaines d'affilée à un programme d'enrichissement. Des groupements de quatre, de trois et même de deux périodes sont préférables.

A titre de suggestion on pourrait considérer la répartition suivante. L'ensemble du programme peut se diviser en trois sections: pièces dramatiques, romans, morceaux et contes, chacune de ces sections comportant une partie étude intensive, et une partie étude sommaire. Si l'on ajoute une partie enrichissement du programme, on obtient ainsi 3 divisions pour chacune des sections:

1. <u>étude intensive</u>	2. <u>étude sommaire</u>	3. <u>étude de sujets particuliers pour enrichissement</u>
Andromaque (7 semaines)	Barbier de Séville (4 semaines)	au choix du professeur (1 semaine)
Terre des Hommes (3 semaines)	Menaud Maître-Draveur (2 semaines)	au choix du professeur (1 semaine)
Textes choisis (9 semaines)	Contes (2 semaines)	au choix du professeur (1 semaine)

3. Choix des sujets et des méthodes

La liste des sujets que l'on pourrait proposer est inépuisable et elle devrait nécessairement varier selon les professeurs, les élèves et le milieu. Cependant, certaines considérations d'imposent.

Dans les commentaires publiés par le Département d'Education sur les réponses des candidats aux examens de français de juin 1963, on fait état de l'incapacité des candidats à "reconnaître dans les questions les mots clefs tels que "appréciez", "justifier", "tragique"; en composition surtout, on déplore chez un grand nombre de candidats le manque de maturité et de lecture ou tout simplement de bon goût, l'indigence de l'imagination, la banalité du style, l'inhabileté à penser d'une façon claire et suivie. Dès lors, ne devient-il pas de première nécessité au cours de cette année pré-universitaire qu'est la 13^e année, d'orienter l'enseignement dans le sens d'un agrandissement de la culture générale et de l'épanouissement de la personnalité par la maîtrise de la langue et de conjuguer étroitement, en tout temps, l'enseignement de la composition et celui de la littérature? A plus forte raison, le programme d'enrichissement que l'on prévoit devrait-il suivre dans cette voie.

Un autre aspect qu'on ne saurait négliger est celui de l'entraînement des élèves à travailler de leurs propres ressources selon une méthode efficace de travail personnel. Sans doute cet entraînement a-t-il débuté dans les années antérieures; cependant, en 13^e année, il devrait se poursuivre d'une façon plus intense. Le choix et le traitement des sujets

devraient donc favoriser l'emploi de la recherche personnelle, la connaissance et l'usage des services de bibliothèques, la consultation des ouvrages de référence, l'interprétation des témoignages, documents, notices bibliographiques, commentaires, etc. On devrait en profiter, en outre, pour amener l'élève à maîtriser l'art de prendre des notes, de les compléter, de les rédiger et pour l'exercer dans des diverses formes de présentation des travaux que ce soit par écrit (rapport, dissertation, analyse littéraire, essai, etc.) ou oralement, selon diverses formules ("séminar", table ronde, débat, etc.).

Quant aux méthodes, il ne saurait y en avoir d'uniques; il en existe même une variété, pouvant s'exercer de manières différentes, parfois sur le même sujet. Un professeur bien avisé adoptera la méthode qui s'accorde le mieux avec les buts spécifiques d'un enseignement particulier.

Ainsi, dans le choix d'une méthode pour étudier le genre lyrique, sujet de théorie littéraire, on pourrait employer la méthode inductive, fondée sur l'examen et la discussion d'une série de textes, suivant les étapes: observation, comparaison, généralisation. Par ailleurs, on pourrait préférer partir d'une notion théorique du genre lyrique pour en faire voir l'application dans une série de textes: ce serait la méthode déductive. Un professeur, désirant traiter les grandes étapes de l'histoire de la littérature française, pourrait avoir recours à la méthode expositive (dite de "cours"), profitant alors de l'occasion pour entraîner ses élèves à prendre des notes, à les compléter et à les rédiger. La méthode du "séminar" en certaines circonstances, pourrait se prêter à une étude intéressante d'un sujet tel: "Le sens de la solidarité humaine dans le roman "Terre des Hommes", de Saint-Exupéry". Voudrait-on amener les élèves à examiner jusqu'à quel point l'esprit de Beaumarchais est le reflet d'une époque sociale, que la méthode de recherche personnelle pourrait paraître tout indiquée. Si l'on a présenté, en classe, le destin tragique des héros de la pièce "Andromaque", on pourrait par la méthode comparative diriger une étude semblable des héros de la pièce "Antigone" de Jean Anouilh.

Quelle que soit la méthode qu'il emploie, le professeur ne devrait pas négliger d'en rendre ses élèves conscients et de donner ainsi à son enseignement, non seulement une valeur purement éducative, mais encore une valeur de formation et d'entraînement aux études universitaires. Enfin, inutile d'insister pour que le professeur se serve de toutes les ressources de son art et surtout des aides pédagogiques de toutes sortes que la technique moderne met à sa disposition: documents, illustrations, disques, films, diapositives, diagrammes, tableaux, etc. Son enseignement en sera plus vivant, plus marquant.

Quant aux sujets dont on pourrait considérer de faire une étude approfondie, on a l'embarras du choix. A cette enseigne, on pourra consulter avec profit les diverses éditions des "Petits Classiques" ou les nombreux manuels de dissertation littéraire, d'explication de textes, d'anthologie, de critique et de théorie littéraires. Ces manuels traitent

d'une foule de sujets parmi lesquels les professeurs trouveront d'utiles suggestions qu'ils devront adapter, selon leur bon jugement, aux besoins de leur enseignement, sans crainte d'éliminer, de combiner, ni de modifier. Les sujets les plus fertiles sont encore ceux que les professeurs inventeront eux-mêmes, en corrélation étroite avec le programme d'études. Qu'il suffise de dire que ces sujets devraient être d'envergure limitée et qu'il ne s'agit pas de lancer les élèves dans des travaux de thèse doctorale ou de fine polémique.

GEOGRAPHY

Part A

Reduction of the Existing Course

1. Delete from Curriculum S.7, Geography under Part B, Geographical Regions of Canada, pages 20 and 21, the following:
 - (a) Topic 1, The Gulf Region or Atlantic Provinces
 - (b) Topic 7, The Yukon
2. Of the many urban studies which teachers, in the past, felt should be included to give the course the fullest treatment, only the following need be given intensive treatment for the school year 1964-65:

Montreal, Toronto, Sudbury, and Vancouver

3. The study of the major geographical regions of Canada as listed in pages 20 and 21 of Part B of the course of studies does not include an intensive and detailed study of the many sub-regions within each region, but rather that each region be studied as a whole involving the physical and economic geography as indicated in pages 21, 22 and 23. The Grade 13 Geography examination for 1965 will have no questions based on the detailed study of sub-regions.

Part B

Suggestions for Teaching in Depth

The teaching time gained as a result of the deletions and reductions noted in Part A should be spent on providing the students with greater opportunities to become more familiar with the use and the analysis of topographical maps that are representative of the major geographical regions listed on pages 20 and 21 of Curriculum S.7, 1960.

Furthermore, students should study geographical problems of local interest. The problems might be investigated as group activities or as individual projects and the findings should be reported in the form of seminars or classroom discussions. During the study of a problem, the students should gain some experience of research techniques such as field work, direct enquiry, access to reference materials, analysis of local maps and documents where available, and of presenting their findings.

GREEK

Part A

Reduction of the Existing Course

1. Re Circular 58, Prescriptions for Departmental Examinations of 1965, page 10, students will not be required to read selections 26-29 in Freeman and Lowe: A Greek Reader for Schools. (This is a deletion of approximately 60 lines.)
2. Re Circular 58, Prescriptions for Departmental Examinations of 1965, page 10, Note 2, and re Curriculum I and S. 11, Latin and Greek, page 48, the statements made concerning vocabulary remain unchanged except that the English sentences for translation into Greek will be based on the vocabulary of some of the prescribed prose authors, namely the Thucydides and Xenophon excerpts found in selections 75-85 and 86-95 of Freeman and Lowe: A Greek Reader for Schools. (This change, in fact, merely brings Greek into line with the pattern followed for years in Latin.)
3. Re Curriculum I and S. 11, page 48, the following forms and constructions are specifically excluded from the required knowledge for translation of English into Greek or for grammatical questions based on the prescribed authors. However, students will be responsible for the translation in sight passages of any of these forms or constructions that occur in any of the prescribed prose authors.

Forms

- a) ordinals and adverbs above "five"
- b) duals
- c) vocatives
- d) declension of κρίας, γραῦς, πῆχυσ
- e) δείκνυμι - type verbs
- f) future perfect system
- g) omicron-contract verbs

Constructions

- a) genitive of cause
- b) ὅστις and the future indicative to express purpose
- c) ἐφ' ᾧ, ἐφ' ᾧτε (on condition that) construction
- d) ἢ ὥστε to translate English "too", e.g. "too big for me to carry"
- e) monetary future condition

3. Constructions (continued)

- f) φθίνω and its construction with the participle
- g) impersonal verbs πάρεστι, λυσιτελεῖ, πρέπει, προσήκει, συμφέρει, μέλει, μεταμέλει, μέτεστι
- h) accusative absolute
- i) verbal adjectives
- j) dative of agent
- k) attraction of the relative
- l) all verbs of "preventing" and "hindering" and their special construction except κωλύω
- m) double negatives (μή οὐ) except in clauses of fearing
- n) μή used generically
- o) ὥφελον to express wishes

Part B

Suggestions for Teaching in Depth

The importance of integrating the "study in depth" closely with the prescribed course cannot be over-stressed; as a corollary, it may well prove advisable to distribute the additional material as unobtrusively as possible throughout the school year.

1. Additional sight reading in Greek of passages relevant to the prescribed authors selections. The text-book containing the Grade 13 authors, A Greek Reader for Schools, or one of the books suggested by the Department annually for prose authors in Grade 12, could provide excellent reading for this purpose.
2. Reading in translation of selections relevant to the prescribed prose authors. For example, it would be possible through the many paperback editions now on the market to read some of the tales from Herodotus or the climactic scenes from the Persian Wars; such famous passages from Thucydides as the escape from Plataea, the plague description (along with some case histories from Hippocrates and his "oath"), Pericles' funeral oration, stasis in Corcyra or the Sicilian expedition; the Apology of Plato and/or Memorabilia of Xenophon; additional parts of the Odyssey. Students could also be introduced to the Clouds of Aristophanes. Some teachers may prefer to use an anthology such as The Spring of Civilization: Periclean Athens by C. A. Robinson, Jr. (Clarke, Irwin - paperback). Thus a few days could be spent at intervals throughout the school year to supplement the prescribed authors, and students might gain greater insight into the brilliance of the century about which their prose authors wrote.

2. (continued)

The titles in this and subsequent lists are only a few of the many that might be suggested. See the end of this report for additional suggestions.

Herodotus, Histories, translated by de Selincourt (Penguin)

Thucydides, Peloponnesian War, translated by Rex Warner (Penguin)

Homer, Odyssey, translated by Rouse (New American Library: Mentor)

or

Homer, Odyssey, translated by E. V. Rieu (Penguin)

Aristophanes, Five Comedies of Aristophanes, translated by B. B. Rogers (Doubleday Anchor)

Plato, The Last Days of Socrates (Apology, Crito, Phaedo) (Penguin)

or

Plato, Euthyphro, Apology, Crito, with the death scene from Phaedo, revised translation by Gammie (The Library of Liberal Arts)

3. Background reading of modern books about the prescribed authors and their periods. Teachers could consider such books as the following:

A. R. Burn, Pericles and Athens (Crowell: Collier)

C. M. Bowra, The Greek Experience (New American Library: Mentor)

M. Finley, The World of Odysseus (World)

H. D. F. Kitto, The Greeks (Pelican)

Rex Warner, The Greek Philosophers (New American Library: Mentor)

M. Smith, The Ancient Greeks (Cornell)

W. R. Agard, What Democracy Meant to the Greeks (Wisconsin)

Robinson, Everyday Life in Ancient Greece (Oxford)

H. M. Herget, Everyday Life in Ancient Times (National Geographic)

Lister Sinclair, Socrates (Book Society of Canada)

Maxwell Anderson, Footloose in Athens

Micheline Sauvage, Socrates and the Human Conscience (Longmans)

4. Short essays could be assigned pertaining to the prescribed authors. For these the teacher could direct students to a combination of the first three suggestions above: additional reading of background books, Greek in translation and perhaps a little additional Greek. In some schools the Classics teacher may thus find himself giving students their first chance to write a critical, as opposed to a creative, essay.
5. A period or two spent on films or filmstrips can be beneficial provided the pictures shown have clear relevance to the prescribed authors. Similarly, teachers may consider using tapes of C.B.C. school broadcasts or such recordings as Plato, On the Death of Socrates (Folk 9979).
6. Reading verse aloud Some teachers will want to devote more time to practising the reading aloud of Homeric verse. A tape-recorder can be useful for this, especially in small Greek classes.
7. Thirty-minute lectures to introduce each prescribed author. In addition to giving much background in a short time, these could help prepare students for the transition to university methods. Such general works as H. J. Rose, A Handbook of Greek Literature (now available in Dutton Everyman Paperback) are helpful for this.

Note re additional titles:

Teachers desiring a recent listing of publishers' addresses could consult pages 77 and 149-151 of the latest English Curriculum (RP-S4): page 77 gives four addresses for catalogues of paperbound publications.

In addition, teachers who do not subscribe to The Classical World may be interested in ordering some recent single copies that listed paperbacks, text-books and audio-visual materials. The pertinent copies are December 1963 for paperbacks, March 1964 for text-books, and April 1964 for audio-visual materials. These are available to non-subscribers at 60¢ each (U.S. funds), prepaid, and can be ordered from The Classical World, Fordham University, 441 East Fordham Road, Bronx 58, New York.

It is worth remembering that teachers can usually borrow books from the libraries of the universities from which they graduated, and that occasional articles in periodicals can be reproduced ("xeroxed") at about 10¢ a page through university libraries. Probably teachers should work through the school librarian to Inter-library Loan at the appropriate university.

HISTORY

Part A

Reduction of the Existing Course

1. It is suggested that in Part One (pages 27, 28), Section I, The British and French Empires in North America, and Section II, The American Revolution, should be treated extensively in a few introductory lessons, probably not more than five.
2. Section III of Part One, The Survival of British North America (page 28) should be regarded as an integral part of the course in Canadian History, forming the introduction to it. It will, probably, be studied when this part of the work is begun in January.
3. In Part Two, Section III A., Economic Advance after the Civil War (page 29), the general nature of the post-war economic advances and the economic, social, and political consequences are of crucial importance. It is suggested, however, that the details are not considered essential to an understanding of the problems.
4. For examination purposes, the study of the History of the United States of America and of Canada will end in 1945. The following topics will, therefore, be treated extensively:

<u>Page</u>	<u>Part</u>	<u>Section</u>	<u>Subsection</u>	<u>Title</u>
30	Two	IV	C	The Challenge of Western Leadership
30	Two	IV	D	American Culture
32	Three	IV	E	Modern Canada
32	Three	IV	F	Canadian Culture

Part B

Suggestions for Teaching in Depth

Under direction, a student should develop one or more themes essential in the structure of the course. A major assignment in such an area should measure his ability to read outside the text, or texts, to examine a wide variety of - and often conflicting - sources, to analyze his material and to organize it in a logical and lucid manner for presentation. The importance of the student's continuing work of this nature throughout some part of the course cannot be over-emphasized. It becomes his term work.

No useful purpose will be served if the term mark in History is based only on the results of term examinations. It must be determined in part after consideration of the student's term work.

There must be evidence in class of this study in depth as it develops during the year, evidence of wide reading and the bibliographic skill that should result from it, preparation and presentation of the formal essay, participation in seminars and discussion lessons.

To illustrate the manner in which this enrichment phase of the student's work may be a part, or an extension, of the basic, prescriptive course, the following themes are offered as suggested areas in which a major assignment may be given:

The nature and problems of Canadian and American federal systems,

The causes and results of the American Civil War,

The history of English-French relations in Canada.

LATIN

Part A

Reduction of the Existing Course

1. Re Circular 58, Prescriptions for Departmental Examinations of 1965, page 9, in addition to the lines already listed for omission, the following lines should also be omitted:

Catullus, lines 1382-1401
 Vergil, lines 1946-1967
 Cicero, lines 2032-2061

2. For the Departmental Latin examination of 1965, the following grammatical points are not to be required knowledge for translation of English into Latin or for grammatical questions based on the prescribed authors. However, students will be responsible for the translation in sight passages of any of these grammatical points that occur in any of the prescribed prose authors.

Although text-books are not authorized or approved in Grade 13, teachers may find the references given here to Breslove, Latin Composition, a help in clarifying the points to be deleted from Curriculum I and S. 11.

<u>References to Curriculum I and S. 11</u>	<u>Points to be Deleted</u>	<u>References to Breslove, Latin Composition</u>
	conative imperfect	3c
A.1.(I)(c)	historical infinitive and its subject	26
	nominative	
A.1.(II)(b), (c)	subjective and objective genitives	30
A.1.(II)(c)	genitive with words indicating plenty and want	316
A.1.(II)(f)	genitive of equivalence	35
A.1.(II)(i)	genitive of price	38
A.1.(III)(i)	dative of reference	56
A.1.(VI)(m)	ablative of attendant circumstances	75
B.3(VI)(a)	uses of <u>neve</u> and <u>neu</u> in purpose and	84c
B.3(V)(e)	indirect command	102
B.3(VI)(a)	<u>quo</u> in purpose clauses	86
A.1.(VI)(q) 3.	phrases like <u>ab hora septima ad vesperum</u>	98c
A.3.(I)	<u>ipse</u> as an indirect reflexive	109e
	the omission in Latin of any equivalent for	111d
	the word "that" in such a sentence as,	
	Caesar's army is larger than <u>that</u> of the Gauls	
A.2.	<u>ipsius</u> and <u>ipsorum</u> in apposition to possessive	112b
	adjectives	
A.2.	<u>vir</u> (or <u>homo</u>) with an adjective in apposition	115e
	to a name	
A.3.(I)	the distinction between <u>ceteri</u> and <u>reliqui</u>	125c
A.3.(I)	the use of <u>quisque</u> following a reflexive,	130b
	superlative (to show a class) or an ordinal	

B.3. (XI) (e)	the distinction between <u>nisi</u> and <u>si ... non</u> , and the use of <u>sin</u>	139a,b
	the indicative used to show that a clause is <u>not</u> part of indirect discourse	142
B.3. (XV) (b)	virtual indirect discourse	145
B.3. (VII) (e)	result clauses used to translate "without"	150
B.3. (VII) (f) 4.	relative clauses of characteristic following a comparative with <u>quam</u>	152e
B.3. (VII) (f) 2.	relative clauses of characteristic with <u>quin</u>	152f
B.3. (X) (c)	relative clauses of reason	170
B.3. (X) (d)	rejected clauses of reason	172
B.3. (XII) (c)	use of concessive clauses to translate "instead of"	175
B.1. (IX) (c)	<u>cum</u> with relative force often preceded by <u>eo tempore</u> or <u>igitur</u>	180
B.3. (XIII)	clauses of proviso	192
B.3. (II) (f)	potential subjunctive, including its use in rhetorical questions	196,62
	use of gerund to avoid ambiguity, e.g. <u>ars</u> <u>vera ac falsa diiudicandi</u>	210b
	the use of <u>utor</u> and <u>potior</u> in the gerundive construction	211
B.7. (III)	personal use in Latin of some verbs which are often impersonal in English, e.g. <u>videor</u> , <u>dicor</u>	223
B.3. (XVI) (b)	use of <u>fieri non potest quin</u> and <u>facere non</u> <u>possum quin</u>	237
B.1 (X)	clauses of comparison introduced by <u>ut</u> and <u>sicuti</u>	241a
B.3. (XIV)	clauses of comparison introduced by <u>quasi</u>	241b

Part B

Suggestions for Teaching in Depth

The importance of integrating the "study in depth" closely with the prescribed course cannot be over-stressed; as a corollary, it may well prove advisable to distribute the additional material as unobtrusively as possible throughout the school year.

1. Additional sight reading in Latin of passages relevant to the prescribed authors selections. Students could read some, or all, of the Cicero and Sallust passages omitted from Cycle III, but, of course, without being under the pressure of the final June examination. Similarly, poetry passages omitted from Cycle III might be read for specific purposes: for example, teachers may wish to read the relatively easy Latin of Catullus' Hymn to Diana (pages 121-123) in order to compare it with Horace's Hymn to Mercury (pages 127-129) and with what is perhaps Horace's attempt to parody

1. (continued)

the hymn form, To a Wine Jar (o nate mecum pages 143-145). Or again, teachers may wish to read Horace's prologue (Odes I.1) to compare with his epilogue (Odes III, 30) even though the former comes in Cycle II and the latter in Cycle III; or teachers may want to go beyond Cycle III in order to contrast Catullus' and Horace's treatment of (for example) love or humour. Although such crossing of Cycle lines can have value, for obvious reasons it would be inadvisable to read very much from Cycles other than III, especially from Cycle I.

Teachers wishing to go beyond the Grade 13 authors text-books could choose some selections from Grade 12 authors books or use one of the numerous readers on the market. For example, if teachers should decide to have students read more Sallust in order to study the Catilinarian conspiracy in greater depth, they might consider using Wormald and Lyne, Rogues' Gallery (Cambridge: Macmillan), or Lightfoot, Cicero and Catiline (Macmillan). For sources of additional titles see the end of this report.

2. The reading in translation of passages relevant to the prescribed authors. For example, by means of the many paperback editions now on the market, students could read more of the writings of the prescribed authors: perhaps the first six books of the Aeneid, some of the more obvious letters of Cicero, and some of the more interesting parts of Caesar's Commentaries. It is doubtful whether many students would profit much from reading additional poems of Horace or Catullus without considerable help from the teacher. Some teachers may prefer to use such anthologies as Hadas and Swits, Latin Selections (Bantam), or Michael Grant, Roman Readings (Penguin).

In addition, students could read translations of works throwing light on the prescribed authors. To see Vergil's indebtedness to the katabasis theme, students could read Homer's picture of Odysseus' descent to the underworld (Odyssey II) and perhaps look into Aristophanes' Frogs to see how the theme can be delightfully parodied. Or students might extend their knowledge of the first century B.C. in general, and of their prescribed authors in particular, by reading Plutarch's Life of Caesar and Life of Cicero, and might in so doing assess the literary power of an ancient historical biographer; in the Life of Cicero, Plutarch's account of the conspiracy of Catiline could be given special attention, while in reading the Life of Caesar, teachers might briefly demonstrate Shakespeare's indebtedness to Plutarch.

Another obvious possibility would be to combine the reading of passages in translation with some in Latin.

Such paperbacks as the following may prove useful:

Vergil, Aeneid, translated by C.D. Lewis (Doubleday: Anchor)

or

Vergil, Aeneid, translated by Dickinson (New American Library: Mentor)

Homer, Odyssey, translated by Rouse (New American Library: Mentor)

or

Homer, Odyssey, translated by Rieu (Penguin)

Plutarch, Eight Great Lives (Holt, Rinehart, and Winston)

Caesar, The Conquest of Gaul, translated by Handford (Penguin)

3. Background reading of modern books about the prescribed authors and their period. Some of the many fine books now on the market are listed below. Teachers should use their discretion in deciding to what extent students can use these works. Certainly, there is not one of them that could not be used by students under certain circumstances.

Paperbacks

- H. J. Rose, A Handbook of Latin Literature (Dutton Everyman Paperback)
Michael Grant, Roman Literature (Pelican)
Michael Grant, The World of Rome (New American Library: Mentor)
D. R. Dudley, The Civilization of Rome (New American Library: Mentor)
Tenney Frank, Life and Literature of the Roman Republic (University of California Press)
R. H. Barrow, The Romans (Pelican)
F. R. Cowell, Cicero and the Roman Republic (Pelican)
Ronald Syme, The Roman Revolution (Oxford Paperback)
E. Hamilton, The Roman Way to Western Civilization (New American Library: Mentor)
J. Carcopino, Daily Life in Ancient Rome (Penguin)
Gilbert Highet, Poets in a Landscape (Pelican)

Hardcover

- L. R. Taylor, Party Politics in the Age of Caesar (California)
F. R. Cowell, Everyday Life in Ancient Rome (Batsford)
H. M. Herget, Everyday Life in Ancient Times (National Geographic)
J. Buchan, Julius Caesar (Davies, 1932)
F. E. Adcock, Caesar as a Man of Letters (Cambridge: Macmillan)
J. L. Strachan-Davidson, Cicero and the Fall of the Roman Republic
C. J. Fordyce, Catullus (Oxford University Press)
Kenneth Quinn, The Catullan Revolution (Melbourne University Press: Macmillan)
Otis, Vergil: A Study in Civilized Poetry (Oxford)
L. P. Wilkinson, Horace and His Lyric Poetry (Cambridge: Macmillan)
E. Fraenkel, Horace (Oxford, The University Press)
Steele Commager, The Odes of Horace (Yale University Press: McGill University Press)
Kenneth Quinn, Latin Explorations (Routledge and Kegan Paul)
L. P. Wilkinson, Golden Latin Artistry (Cambridge: Macmillan)

4. Short essays could be assigned pertaining to the prescribed authors. For these, teachers could direct students to a combination of the first three suggestions above: the reading of a little additional Latin, some Classics in translation and background books. From the many essay topics possible (comparisons of authors, themes, styles, treatments; studies in character, for example, that of Cicero not only through his speeches, but also through some of his letters and Plutarch; historical essays, etc.), teachers could select and announce a few at the beginning of the year so that students could be thinking about them and reading for them as the prescribed authors are taken up in class.

In some schools, the Classics teacher may find that he is giving students their first opportunity to write a critical, as opposed to a creative, essay.

5. The deletions announced above will allow more time to teach the prescribed authors as literature: with the help of such works as those mentioned in section 3 above, teachers (and students too, if the teacher assigns occasional small reports) can introduce more background analysis of structure and theme, and comparison with other poems or passages. As a help to this end, some general articles on special aspects of Horace's Odes are given here:

- Andrewes, "Horace's Use of Imagery in the Odes and Epodes", Greece and Rome 19 (1950), 106-115
 N. E. Collinge, "Form and Content in the Horatian Lyric", Classical Philology 50 (1955), 161-168
 S. Commager, "Function of Wine in Horace's Odes", Transactions of The American Philological Association 58 (1957), 68-80
 J. Cordray, "Structure in Horace's Odes: Some Typical Examples", Classical Journal 52 (1956-1957), 113-116
 A. Dalzell, "Maecenas and the Poets", Phoenix 9 (1951), 151-162
 J. Ferguson, "Horace and Catullus", American Journal of Philology 77 (1956), 1-18
 N. Rudd, "Patterns in Horatian Lyric", American Journal of Philology 81 (1960), 373-392
 H. L. Tracy, "Thought-sequence in the Ode", Phoenix 5 (1951), 108-118

In addition, here are some selected articles on individual odes in Cycle III:

- 1 (I.11): R. E. Grimm, "Horace's Carpediem", Classical Journal 58 (1962-1963), 313-318
 4 (I.5): D. M. Levin, "Thought-progression in Horace, Carm. 1.5", Classical Journal 56 (1960-1961), 356-358
 10 (III.29): R. Hornsby, "Odes III.29" Classical Journal 54 (1958-1959), 129-136
 11 (III.23): F. A. Sullivan, "Horace's Ode to Rustica Phidyle", Classical Philology 55 (1960), 109-113

6. A period or two spent on films, filmstrips, slides, or recordings can have benefit provided the materials used have clear relevance to the prescribed authors. Folkways have a large number of Latin records, largely, if not entirely, by Hadas and Richards; the Karl Orff record, Carmina Catulli would need judicious use. The C.B.C. school broadcasts direct some programmes to the Grade 13 level.

Incidentally, a fine colour photograph of the Sibyl's Cave, a map, and other illustrations of the whole area, have been reprinted from an article of R. V. Schoder which originally appeared in Scientific American for December, 1963. Reprints are available at 25¢ each (U.S. funds) prepaid, (20¢ in lots of six or more) each, from Mrs. Anne B. Thayer, St. Paul's School, Concord, N.H.

7. Reading verse aloud Some teachers will want to devote additional time to practising the reading aloud of the prescribed metres on the ground that the teaching of scansion should be a means to the end of reading, not an end in itself. In addition to using commercial recordings, teachers can let students practise and hear their own reading on a tape recorder.

8. Thirty-minute lectures to introduce each prescribed author. As well as giving much background in a short time, these could help prepare students for the transition to university methods.

Note re additional titles:

Teachers desiring a recent listing of publishers' addresses could consult pages 149-151 of the latest English Curriculum (RP-S4); page 77 of the same document gives the following four addresses for obtaining catalogues of paperback publications:

Longmans Canada Limited, Paperback Division, 55 Barber Greene Road, Don Mills

S. J. Reginald Saunders and Company Limited, 266 King Street West, Toronto 2B

McClelland and Stewart Limited, 25 Hollinger Road, Toronto 16

Musson Book Company Limited, 103-107 Vanderhoof Avenue, Toronto 17.

Teachers who do not subscribe to The Classical World may be interested in ordering some recent single copies that listed paperbacks, text-books and audio-visual materials. The pertinent copies are December 1963, for paperbacks, March 1964, for text-books, and April 1964, for audio-visual materials. These are available to non-subscribers at 60¢ each (U.S. funds), prepaid, and can be ordered from The Classical World, Fordham University, 441 East Fordham Road, Bronx 58, New York.

It is worth remembering that teachers can usually borrow books from the libraries of the universities from which they graduated, and that occasional articles in periodicals can be reproduced ("xeroxed") at about 10¢ a page through university libraries. Probably, teachers should work through the school librarian to Inter-library Loan at the appropriate university.

MATHEMATICS

Part A

Reduction of the Existing Course

Algebra

- Page 19, Section 2, delete lines 6 to 10, "the solution of $ax + by + cz = 0$... fundamental theorems and exercises thereon".
- Page 20, Section 4, in the last paragraph, delete "its use in determining the maximum or minimum value of a quadratic function".
- Page 20, Section 5, change line 7 to read $\frac{1}{x}, \frac{1}{x^2 + 1}, \frac{x}{x^2 + 1}$, their graphs and their properties, but omitting algebraic determination of maxima and minima".
- Page 21, Section 9, line 3, delete "bonds, debentures, mortgages, sinking funds".

Geometry

- Page 23, Section 7, paragraph 3, delete "latus rectum".
- Page 23, Section 7, delete paragraph 7, "Diameters of a parabola".
- Page 23, Section 7, after paragraph 8, "Examples of the occurrence of the parabola in physics", add the sentence "Eliminate problems relating to physics requiring knowledge of the formulas $s = \frac{1}{2}gt^2$ and $s = vt$, connected with the curve of flight".
- Page 24, Section 8, lines 4 and 5, delete "latus rectum, eccentricity".
- Page 24, Section 8, delete paragraph 3, "Diameters of an ellipse, conjugate diameters".
- Page 24, Section 9, line 4, delete "(2) mechanical method using cord".
- Page 24, Section 9, paragraph 3, delete "latus rectum, eccentricity".

Note 1: The terms latus rectum and eccentricity have been deleted in order to reduce the memorization of trivial formulas and their mechanical applications. However, it is not intended to rule out the use of the definition of the ellipse in terms of focus, directrix and eccentricity if desired and locus problems based thereon.

Note 2: On page 24, delete the last paragraph and substitute, "General concept of asymptote, discussion of the equations

$$y = \frac{b}{a} \sqrt{x^2 - a^2} \quad \text{and} \quad y = -\frac{b}{a} \sqrt{x^2 - a^2}$$

for large values of x ; asymptotes of hyperbolas.

Trigonometry and Statics

- Page 28, Section 7, delete paragraph 1 and replace by "The solution of triangles with the aid of logarithms, using the law of sines".
- Page 28, Section 7, change the supplementary topics to read
Supplementary topic 1: the functions of the half-angles
Supplementary topic 2: identities based on formulas for oblique triangles.

- Page 28, Section 9, delete line 2 to the end of paragraph 1, as follows:
"radius of circumscribed circle, ... area of sector of a circle".
Add the following sentence, "The development of the formula for the area of the triangle in terms of its sides, without the use of the half-angle formulas". (See one of the new Grade 11 text-books.)
- Page 29, Statics, unit 4, delete "Couples".
- Page 30, Statics, unit 4, delete lines 1 and 2 and replace with "Centre of Gravity of a rod".
- Page 30, Statics, delete unit 6.

Part B

Suggestions for Teaching in Depth

The following items being merely suggestions, the teacher should be guided by his own preferences and by limitations of time in selecting for depth study a few topics which he finds to be of keen interest and in which he has special competence.

Teachers are advised to be familiar with the alternative approaches to many topics, given in the different text-books listed in Circular 14, page 48, under Schedule D.

Many of the supplementary topics listed in Curriculum S.12 are suitable for treatment in depth. Most of these topics are covered in the text-books mentioned above.

Other useful sources of appropriate material include:

- (a) Past and future issues of the Ontario Mathematics Gazette (note also some of the book reviews and references in articles)
- (b) The revised courses of study for Grades 11 and 12, and the new text-books as they become available
- (c) Various issues of "The Mathematics Teacher", published by N.C.T.M.
- (d) Brochures issued by the Ontario Mathematics Commission.

Topics Crossing Subject Boundaries

1. Additional work on the topic of limits as it applies to sequences, series, tangents, areas, asymptotes. Note: The curve $y = |1 - x^2|$ provides a simple illustration of points at which a tangent is not defined.
2. Regions defined by inequalities, as they occur in graphing in all three subjects.

3. In the plotting of functions, the student should ask the following questions: (1) Where is the function positive, negative, undefined? (2) What happens to the function as x gets very large, positively or negatively, or as x approaches values at which the function is undefined?

Topics in Algebra

1. Extended work on number systems.
2. Further study of series, including development of the general notion of sequence and series before specializing to A.P. and G.P.
3. The topic of inequalities.
4. Although it is intended that examinations should not include the solution of more difficult equations requiring specific "tricks", some of this type are suitable for supplementary treatment.

Topics in Geometry

1. Families of lines, relating this to the solution of equations by the elimination of variables, and the meaning of equivalent systems of equations; families of circles, including co-axial and orthogonal systems.
2. The focus, directrix, eccentricity definition of the conic sections, and the general second degree equation.
3. Parametric equations of the straight line as a unifying concept.

Topics in Trigonometry

1. Extended work on the graphs of the trigonometric, exponential and logarithmic functions, perhaps along the lines of the new Grade 12 course of study.
2. The limit of $\sin \theta$ as θ approaches zero, for θ in radian measure, provides an interesting application of the formula for the area of a sector of a circle.
3. In Statics, although problems on tipping and on wheels rolling on inclined planes or over obstacles are not on the regular course, they might be considered for this section of the work.

The Problems Examination Paper

1. All of the topics deleted from the three courses are to be considered suitable material for the Problems examination paper.
2. The following is an except from Memorandum 1963-64:84, dated June 26, 1964.

"The Department has been asked by the Ontario Mathematics Commission to permit a limited trial of new topics in Grade 13 during the school year 1964-65. Since the administration of the Departmental Examinations makes experimentation more difficult in Grade 13 than in earlier grades, it has been decided to have the new topics introduced only to candidates for the Problems paper. The Ontario Mathematics Commission has agreed to prepare a brochure on each of the four topics, Complex Numbers, Polar Co-ordinates, Probability, and Logic, and to send copies to the secondary schools of the province by September 1964.

In June 1965, the Grade 13 Problems paper, in addition to testing the topics of the three Grade 13 mathematical subjects, will test the four new topics.

It is expected that the paper will contain fifteen questions divided into two sections -

Section A consisting of eleven questions based upon the compulsory and supplementary topics of the Grade 13 courses of study for Algebra, Geometry, and Trigonometry and Statics,

Section B consisting of four questions based upon the following topics: Complex Numbers, Polar Co-ordinates, Probability, and Logic.

Any ten questions would constitute a full paper."

MATHEMATICS OF INVESTMENT

Part A

Reductions of the Existing Course

1. Section No. 2 (Logarithms) on page 42 of Curriculum RP-31 is to be deleted.
2. Section No. 4 (Annuities) on page 43 of Curriculum RP-31 is to be changed to Annuities Certain, with the sub-topics in the section to remain the same.
3. Section No. 7 (Bond valuation) on page 43 of Curriculum RP-31 is to be reduced. The "use of Makeham's formula" is to be deleted, and the remaining sub-topics in the section are to be retained in their present form.
4. Section No. 13 on page 44 of Curriculum RP-31, which deals with life insurance and life annuities, is to be reduced. It is to be a descriptive presentation, and the sub-topics:

"determination of net single premium, net annual premium; natural premium and reserve; gross premium;"

are to be deleted.

Part B

Suggestions for Teaching in Depth

1. Section No. 4 (Annuities certain) on page 43 of Curriculum RP-31 can serve as the basis for the study of mortgages, which are now generally set up on a fixed monthly payment basis, with interest incorporated at an annual or semi-annual rate. The mortgage may be written for five years, but the amortization planned over fifteen years. To ascertain the amount of principal outstanding at a particular time is a practical problem. Similar problems can be developed concerning instalment buying.
2. Additional topics of particular interest to students in this course may also be introduced. Taxes can provide interesting problems, taking actual instances where communities sell tax certificates at a discount for prepayment of local taxes. Succession duty taxes, on a definite legacy, to beneficiaries of various classes, with estates of different sizes, may also be of interest. Foreign exchange is a further item which may be introduced.

Reference Books

Sheppard and Baillie: Compound Interest, University of Toronto Press

MODERN LANGUAGES

(French, German, Spanish, Italian, Russian)

Part A

Reduction of the Existing Course

Since the teaching of modern languages in Grade 13 has involved considerable work in translating continuous prose passages based on the prescribed authors texts and the memorization of a highly specialized vocabulary, for the year 1964-65 the teaching of prose translation from English will be discontinued. The vocabulary used in teaching grammar and structure will be that in everyday use and not specifically that found in the prescribed authors text.

Part B

Suggestions for Teaching in Depth

1. More emphasis could be placed on free composition, involving topics based on the prescribed texts as well as other subjects. Oral discussion, leading to blackboard synopses and outlines, could precede and prepare the way for written compositions which might be given as assignments.
2. More attention could be given to the study of the salient features of plot, characters and milieu of the prescribed authors text. Questions designed to elicit comprehensive answers, containing information drawn from various parts of the text, could supplement those dealing with isolated details.
3. More time could be spent on listening comprehension and oral work.
4. If class sets are used for supplementary reading, some school time could be devoted to discussion and checking of such work. In the event of a variety of texts being used, an occasional period might be spent in having students write individual synopses of the books used.
5. More attention could be given to sight passages, not only from the point of view of comprehension, but also of word study and idiom.

MUSIC

Part A

Reduction of the Existing Course

Of the four major works listed on pages 13 and 14 of Circular 58, Prescriptions 1964-1965, the following will be deleted:

Haydn - Cello Concerto - (D Major)

The twenty percent prescription in theory remains in effect.

Part B

Suggestions for Teaching in Depth

It is suggested that the time made available to teachers and pupils by the deletion of part of the original prescription might be devoted to such topics and elements as are noted hereunder.

1. Grade 13 music students should be competent sight singers, and for this purpose they should be drilled thoroughly in tonic sol-fa. As a development on intensive practice in sight singing to syllables, the music teacher should give rhythmic dictation, and the pupils should write simple melodies from dictation. For this purpose, it is suggested that selected themes from the prescribed works might be used, and that special attention should be paid to the themes listed in the précis from the Bach D Major Suite Number 3.
2. In order to give some depth to the course and to compensate for the sacrifice of a major work from the classical period, the music teacher should by lecture and illustration, using recordings, show the elements in a continuous development of music into and through the classical period. The logical course of this development would naturally include after Bach (represented in the course by the Suite in D Major), Mozart as an eminent classicist, and Beethoven as a forerunner to Brahms and as a unique figure making a bridge between classicism and romanticism.
3. The opera, "Amahl and the Night Visitors" by Menotti, lends itself readily to performance in part or in total production. It is hoped that Grade 13 music teachers will take advantage of the increased time at their disposal to have their classes sing much, if not all, of the vocal and choral parts of the opera.

PHYSICS

Part A

Reduction of the Existing Course

Following is a list of items to be deleted for the school year 1964-65.

1. Page 4 - line 6 "Experiments to illustrate static" ...
to line 12 "... disadvantages of friction."
2. Page 4 - line 21 "A brief discussion of shielding ..."
to line 24 "... e.g. Franklin's experiment.
The lightning rod."
3. Page 5 - line 30 "and of a photovoltaic cell"
4. Page 5 - line 35 and 36 "in the television camera
(iconoscope or image orthicon) and"
5. Page 7 - line 9 "Experiments to show (1) the difference ..."
to line 19 "... temperature in a hot-house."

It should be noted that the deletion of the above items will not affect the continuity of the course.

Part B

Suggestions for Teaching in Depth

It is expected that teachers will handle the extra time in different ways. Some may wish to use the time for additional class or demonstration experiments which were not heretofore possible. Others may select a topic or topics and deal with them more rigorously than previously. For the latter group, the following topics may assist the teacher in making a selection.

Beginning in 1965, the physics course for Grade 13 is based on the work of the Physical Science Study Committee. The teacher who wishes to experiment with methods of the P.S.S.C. in teaching topics which are on the present course will find a number of illustrations in the P.S.S.C. text and laboratory manuals. The references given below are from the P.S.S.C. textbook, and are for teachers' information. It is understood that pupils will not be required to buy this book as as a second text.

Curriculum S20

Mechanics

- Motion
- Centripetal and Centrifugal forces
- Universal Gravitation

P.S.S.C. Text

Chapter 5

- " 21, sec. 9
and 10
- " 22

<u>Energy Transmitted by Waves</u>	- Sound - interference	Chapter 18, sec. 2
	- Light - refraction	" 17, sec. 5

<u>Electricity</u>	- presence of charges on each terminal of a voltaic cell	" 27, sec. 7
	- photoelectric	" 33, sec. 4 and 5

Other topics which might be treated in more detail:

1. Rectifiers and amplifiers.
2. Tuned R.F. circuits illustrated by Lodge's experiment.
3. Other areas where the teacher feels he would like to give pupils an opportunity to deal more thoroughly with topics on the course.

SECRETARIAL PRACTICE

Part A

Reduction of the Existing Course

References to
Curriculum

<u>R P -31</u>	<u>Page</u>	<u>Topic Number</u>	<u>To be Deleted</u>
	17, 18	5	Under the heading "Topics for Detailed Study", "Reporting procedure ..." is to be deleted.
	17, 18	4	Topic Number 4 is to be reduced and is to read: "4. Organization of an association - nature, aims and objectives; meeting of an association - notice, agenda, rules of conduct, order of business, preparing and passing motions or amendments, presentation of reports, writing of minutes."

Part B

Suggestions for Teaching in Depth

1. On page 18 of Curriculum R P -31, in Part C - Suggested Projects and Practice, there are a number of suggestions for teaching in depth.
2. More original work by the students is suggested. Reports in manuscript form may be required, prepared by an individual student or students in small committees, dealing with part of topic number 3 (foreign trade) or topic number 4 (Organization of an association) of Part B of the course. In order to have students do some research, an adequate supply of reference books will be necessary. The procedure outlined above will combine topic number 2 from Part C of the course with topics from Part B.

Original work for topic number 4 (Organization of an association) may include some role-playing, involving the presentation of motions, the making of amendments, and recording the minutes (which would not be verbatim reports). Students may also be required to write the minutes of a meeting from a rough draft of the proceedings. This introduction of a second phase will serve to increase the student's understanding, and will combine a knowledge of form and content.

Reference Books

Newman and Newman:	<u>Canadian Business Handbook</u> , McGraw-Hill
Beamer, Hanna, and Popham:	<u>Effective Secretarial Practices</u> , (South-Western) Gage
Civil Service of Canada:	<u>Office Manual</u> , Queen's Printer, Ottawa

ZOOLOGY

Part A

Reduction of the Existing Course

(Reference: Curriculum S.23)

<u>Page</u>	<u>Topic</u>	<u>Change to</u>
10	<u>Coelenterata</u>	A study of living hydra to illustrate a very simple type of many-celled animal. Reproduction, movement and response (sensitivity).
11	Insecta (para. 3 only)	May beetle (Coleoptera) or ichneumon fly (Hymenoptera), and dragonfly (Odonata) or squash bug (Hemiptera).
13	<u>Reptilia</u>	Omit the section on this topic.
13	<u>Aves</u>	Omit the section on this topic.
15	<u>Mammalia</u>	(a) Omit the section on <u>Metabolism</u> . (b) Omit the section on <u>Immunity</u> .

Part B

Suggestion for Teaching in Depth

"Teachers are to be left free to determine for their own classes the elements of the course to be studied in depth."

<u>General</u>	More emphasis should be placed on the experimental work of the course with students undertaking investigations of the various aspects of Biology.
<u>Protozoa</u>	(I) Identification and study of other protozoa which usually accompany living paramoecia or amoeba when observed under the microscope. (II) Identification and study of other animals which usually accompany living paramoecia or amoeba observed under the microscope.
<u>Annelida</u>	Experiments to show the response of earthworms to: (i) different temperatures, (ii) different chemicals, (iii) different light intensities.

Amphibia

Have students become acquainted with other frog species in addition to the leopard frog, e.g. pond types, bull frog, green frog, wood frog; tree types, spring peeper, tree frog.

Have students become acquainted with: toads, salamanders, newts and mudpuppies.

Dissection of stomachs. Analysis of contents to discover the kinds of foods ingested by frogs.

Have students collect frog eggs. Observe cleavage and the various stages in the development of the offspring.

Mammalia

The dissection and study of the mammal as outlined on pages 5 to 7 of Curriculum S. 17B, BIOLOGY - SENIOR DIVISION, GRADE 13 to be introduced in September, 1965.

